

3 inches in length containing a record of Dr. Nansen's work, dated May 19, 1896, the hut proving to be that in which Nansen had stayed. In the place of the document, Mr. Baldwin left a record by himself of his own work and visit.

During the period spent by the expedition in the far north, some fifteen balloons were released containing messages, addressed to the nearest American Consul, respecting both air and sea currents.

After an adventurous and trying journey, the expedition, on July 17, reached a place of safety to the southward of Cape Flora, and eventually home. In Mr. Baldwin's opinion, the old idea of an open Polar sea is baseless. "We know," he says, "that land extends as far as the 82nd degree on the Franz Josef Land side, and it is from here that I believe the Pole will be reached. I quite agree with Lieutenant Peary that the most practical way of attaining the Pole is by sledging from this point."

CONVENTION OF WEATHER BUREAU OFFICIALS.

ON August 27, 28 and 29 of last year, the second Convention of Weather Bureau Officials took place at Milwaukee, Wisconsin, and we have recently received the report of the proceedings, which has been published by the U.S. Department of Agriculture (*Bulletin* No. 31), being edited by Messrs. James Berry and W. F. R. Phillips under the direction of the chief of the Weather Bureau, Prof. Willis L. Moore. The report, which covers no less than 246 pages, will be found most interesting

Amongst other papers of particular interest are those referring to "the forecaster and the newspaper," by Mr. Harvey Maitland Watts, who points out the great value newspapers can be in publishing popular and accurate meteorological information and timely warnings to their readers. Dr. Oliver Fassig gives the results of a study of the diurnal variations of the barometer, and demonstrates the westward movement of the daily barometric wave, portraying it excellently by means of a series of charts which accompany the paper. In the subsequent discussion, Prof. Moore refers to the paper as "quite unique and entitled to great consideration." "Lightning Recorders and their Utility in Forecasting Thunderstorms," "Meteorology in Colleges," &c., are among other subjects touched upon, and the volume concludes with a good index and a capital photograph of a group of the members present at this Convention. There seems no doubt that such gatherings are most useful and valuable, and Prof. Moore tells us that these two conventions have demonstrated their usefulness by affording exceptional opportunity for exchange of views and discussion of methods and means for advancing the work of the Weather Bureau.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE technical schools and colleges throughout London are now beginning their winter's work. An examination of a batch of prospectuses which has reached us shows that year by year there is an increasing amount of attention paid to the varied wants of students engaged throughout the day in different



FIG. 1.—Fog Pyramid. This photograph was taken by Prof. Alex. McAdie on July 30, 1900, at 7.15 p.m. The conditions were normal so far as temperature, humidity and wind are concerned at Mount Tamalpais. The view in the foreground is the town of Mill Valley. The apex of the fog pyramid was (it is estimated) about five miles from the camera. The fog in the background overlies the Golden Gate and the Bay of San Francisco. The formation is peculiar, and it should be noted that the land under the fog pyramid is level, and the uplifting of the fog is not due to the existence of foothills at this point.

reading to meteorologists, for the numerous papers included in the seven sections of the volume refer to widely varied branches of work. To enter into anything like detail in this note is out of the question, but brief references may be made to a few of the papers read at this Convention.

Prof. Moore in his presidential address gave a brief survey of the weather service since its inception in 1870, showing its rapid growth and pointing out its increasing efficiency. "Fog Studies" was the subject of Prof. Alex. McAdie's paper, the author emphasising the point that fog "may be considered as a problem in *air drainage*, just as frost may be so considered." We reproduce one of the numerous excellent reproductions in the report with which he illustrated his remarks. Mr. E. J. Glass describes and illustrates the "chinook" winds so well known to those who live near the Rocky Mountains and which serve the useful purpose of storing the snow that supplies the water to the rivers during the summer season.

industries. At the Battersea Polytechnic, for example, we notice that in addition to the lectures and laboratory work in inorganic, organic and physical chemistry, classes have been arranged in gas manufacture, in the manufacture of oils, fats, soaps and candles, in iron and steel analysis, in paper making and testing, and in the chemistry of the kitchen and laundry. The same thoroughness is shown in the departments concerned with the building, engineering and other trades. The prospectus of the Chelsea Polytechnic, over which Prof. Tomlinson, F.R.S., presides, is published in four volumes dealing respectively with the day colleges for men and women, the day school for boys and girls, and the evening classes. It would be difficult to name a subject, commercial or technical, in which no class is provided at Chelsea. Moreover, every stage is looked after; there are classes suitable for the apprentice, and yet arrangements have been made by which advanced students may engage in research work under the supervision of the principal.

The Sir John Cass Technical Institute at Aldgate is just entering upon its first full session. Intending students will find that complete chemical, metallurgical and physical courses of instruction have been provided, as well as classes in commercial and domestic subjects. Considerable attention appears to have been given to the preparation of candidates for examinations in connection with the University of London.

THE Report for the year 1901 on the museums, colleges and institutions under the administration of the Board of Education has been issued. Among other interesting items, it may be mentioned that the year was marked by a large falling off in the number of visitors to the western galleries of the Victoria and Albert Museum who received special assistance or facilities for the examination of the collections for scientific instruction and research. There was also a diminution in the total number of visitors to the Museum, the total in 1901 being 836,848 as compared with 1,017,314 in 1897, since which year there has been a steady decrease. The most important events in the history of the Royal College of Science during the year reported upon were the retirement of Sir Norman Lockyer after forty-four years' total service, and of Sir Arthur Rücker after fifteen years' service. Similarly the report of the Geological Survey is exceptional, since it records the retirement of Sir Archibald Geikie after a service of more than forty-five years. The Solar Physics Observatory was very busy during the fifteen months with which its report deals, viz. from October, 1900, to December, 1901. Bad weather entirely prevented observations of sun spots on 127 days throughout this period, and 171 nights during the same time were wholly bad for observing purposes, leaving 201 nights available, on which occasions the observers attended.

THE Report of the Board of Education for the year 1901-2 contains much interesting information concerning the amount and quality of the science teaching in schools working under the regulations of the South Kensington authorities. During the session 1900-1, the total number of students receiving instruction in science and art in such schools was 332,329, and the total number of such schools or institutions was 2288. The grants paid in respect of the instruction given, or of the examinations held at its close, amounted to 286,251*l.*, of which it is interesting to note 2687*l.* only was paid on the results of the annual examinations, by far the greater part being awarded upon attendances or in the form of capitation grants in "schools of science." The new regulations, under which fees became payable by candidates for examination in the elementary stage of science subjects, appear to have had a beneficial effect. The percentage of these papers which reached the first class rose from 27 in 1900 to 31 in 1901 under the new regulations, and of those which reached the second class from 32 to 37, the percentage of failures thus falling from 41 to 32. Up to the end of 1901, 78 schools in England and 65 in Wales applied for recognition under the new regulations, which offer grants to secondary day schools taking an approved scheme of instruction for a three or four years' course in science. Of the English schools, 58 were endowed schools, 6 were county or municipal schools, 9 were established by articles of association and 5 by religious bodies. As these regulations only came into force in August, 1901, none of the schools had, at the time of drawing up the report, completed the first year's course, so that no account of the way in which the new arrangements work is yet available.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, September 15.—M. Bouquet de la Grye in the chair.—The cultivation of the yellow lupin (*Lupinus luteus*), by MM. P. P. Dehérain and E. Demoussy. The poor yield of this plant on calcareous soil appears to be due to the effect of the lime in preventing the assimilation of phosphoric acid, since if considerable quantities of phosphate are added, the plant will grow in soils containing a fair proportion of lime. The tubercles containing bacteria capable of fixing atmospheric nitrogen do not, however, appear under these conditions, not even when the yellow lupins are inoculated from the tubercles of white lupins. The growth is best in non-calcareous soils.—On the principal focal surface of the objective of the photographic equatorial of the Observatory of Toulouse, by

MM. B. Baillaud and Montangerand.—On the rocks thrown out by the actual eruption of Mont Pelée, by M. A. Lacroix. From the external appearances, three classes of rocks can be distinguished, compact vitreous blocks of a greyish-black colour, rocks of a clearer colour than these, and angular blocks of white pumice, sometimes as large as a cubic metre. All these have proved to be of the same petrographical type; they consist of hypersthene andesites rich in phenocrysts, the latter consisting of plagioclases of the andesine and bytownite series. The principal coloured element is hypersthene, accompanied by titanomagnetite and small quantities of augite, hornblende and olivine. The products of the eruption have the same general character as the rock mass of Mont Pelée formed in the course of previous eruptions.—On the differences of contact potential, by M. Pierre Boley. A study of the electromotive forces of the cell constructed of the saturated amalgams of two metals, with two electrolytes.—On the electrical resistance of slightly conducting bodies at very low temperatures, by M. Edmond van Aubel. The electrical resistance of iron pyrites was measured for a temperature range of from 60° C. to -181° C. The resistance increases considerably as the temperature is lowered, but there is still an appreciable conductivity at the temperature of liquid air. The curve showing the variation of the electrical resistance of iron pyrites with temperature shows that $\frac{AR}{\Delta T}$ increases as the temperature approaches the absolute zero. Experiments on other metallic sulphides are being carried out.—On a note of M. Th. Tommasina, on the mode of formation of kathode and Röntgen rays, by M. Jules Semenov.—On the formation of liquid drops and the laws of Tate, by MM. Ph. A. Guye and F. Louis Perrot. With other conditions fixed, the weight of a drop falling from the end of a tube is a function of the time of formation of the drop. It follows that any attempt to verify Tate's law, in which the time of formation is not taken into account, is wanting in precision. It is essential that the conditions of experiment should be so arranged that the weight of the drop should be independent of the time of formation. In view of these facts, the authors consider that the experiments of MM. Leduc and Sacerdote do not furnish even an approximate proof of the law in question.—On the production of india-rubber in the forests of the French Congo, by M. Aug. Chevalier. Observations on *Landolphia Klainii*, the chief india-rubber-producing tree in the French Congo.

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